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ABSTRACT

Substrates which are coated with a polar plasma-polymerized coating of a thickness (d) in the nanometer range, the coating having multi-functional properties with long-term stability. The process gas contains at least one hydrocarbon that can be substituted and at least one inorganic gas. In a first zone or stage, the substrate is coated using process gases that contain at least one hydrocarbon compound, at least one hydrocarbon compound comprising functional groups containing nitrogen or nitrogen and oxygen and/or at least one inorganic gas containing nitrogen or nitrogen and oxygen. A second zone or stage uses process gases that are devoid of nitrogen and comprise at least one hydrocarbon compound, at least one hydrocarbon compound with functional groups that contain oxygen and/or at least one inorganic gas containing oxygen. The two stages permit a corresponding lower and upper coating to be applied to the substrate.